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Please consider the following contributed paper for the forthcoming second Hubble Space Telescope Science symposium. We prefer presenting this paper orally.

Sincerely, John Trauger

WFPC2 Imaging of Saturn's Far-Ultraviolet Aurora

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We report the first images of Saturn's far-ultraviolet polar aurora taken with the Hubble Space Telescope Wide Field and Planetary Camera 2 (WFPC2) in October 1994, revealing auroral emissions from atomic and molecular hydrogen in both the north and south circumpolar regions. Two WFPC2 pass bands were used to separate the hydrogen Lyman-alpha and H2 emissions between 1200-1650 Angstroms from Rayleigh-scattered solar continuum radiation between 1650--2100 Angstroms. A dark stratospheric polar hood is observed in the northern polar region, extending southward beyond the auroral region and providing a dark background for the observed emissions. The northern aurora has been clearly detected in a diffuse oval region, with a curtain of emissions which are brightest (50k Ray) near the dawn terminator, but highly variable in intensity over the course of the two-hour observing period. The bright feature appeared fixed in local time, and did not appear to corotate with Saturn as the planet rotated through the 80 degrees of longitude covered in the initial observations. Auroral emissions were marginally detected from the southpolar region despite its unfavorable tilt away from the Earth in 1994, and it appeared less bright than the northern emissions.